Amendments to the Claims

Please amend the claims as follows:

1. (Currently Amended) A countercurrent chromatography apparatus comprising:
a column assembly comprising a plurality of plates, each of the plurality of plates defining an inlet, an outlet, and a plurality of interleaved spiral flow channels, the inlet being in fluid flow communication with one of the plurality of interleaved spiral flow channels and the outlet being in fluid flow communication with another of the plurality of interleaved spiral flow channels, each of the plurality of interleaved ~~wherein at least one of said plurality of plates comprise at least first and second interleaved spiral flow channels formed therein~~, ~~wherein each of said~~ spiral flow channels in one of the plurality of plates ~~includes a first end and a second end, wherein said first ends are closer to the central axis of said plate than said second ends, and wherein the second end of said first spiral flow channel~~ is in fluid flow communication with ~~the first end of~~ another one of the plurality of ~~the second~~ interleaved spiral flow channels in the same one of the plurality of plates ~~channel~~.

2. (Currently Amended) The countercurrent chromatography apparatus of claim 1, ~~additionally~~ further comprising a ~~plurality of~~ septa positioned on either side of the each of the plurality of plates ~~between pairs of said plates~~, wherein ~~at least some of said~~ the ~~plurality of~~ septa ~~comprise~~ includes a hole ~~which is~~ positioned to establish a fluid connection between ~~a second end of a~~ one of the plurality of interleaved spiral flow channels ~~channel~~ in one of said plurality of plates and ~~a first end of a~~ another one of the plurality of interleaved spiral flow channels ~~channel~~ in ~~a second~~ another one of said plurality of plates.

3. (Currently Amended) The countercurrent chromatography apparatus of claim 1, further ~~additionally~~ comprising an upper flange and a lower flange ~~plates~~, the plurality of plates being interposed between the upper flange and the lower

flange ~~and~~ wherein at least the ~~one of said~~ upper flange ~~plate and said~~ or the lower flange ~~plate~~ ~~comprises~~ includes a gear.

4. (Currently Amended) A plate for use in countercurrent chromatography comprising:

a first surface defining an inlet and an outlet ~~;~~and a second opposed surface;

a plurality of interleaved spiral flow channels defined along the first surface, wherein the inlet is in fluid flow communication with one of the plurality of interleaved spiral flow channels and the outlet is in fluid flow communication with another one of the plurality of interleaved spiral flow channels, each of the plurality of interleaved spiral flow channels having an inner end and an outer end; and

at least one flow path to establish fluid flow communication between ~~connecting~~ an outer end of at least one of said interleaved spiral flow channels with ~~to~~ an inner end of another ~~a different~~ one of said interleaved spiral flow channels.

5. (Currently Amended) The plate of claim 4, wherein said plurality of interleaved spiral flow channels comprises ~~comprise~~ grooves formed in said first surface.

6. (Currently Amended) The plate of claim 5, wherein said flow path comprises a groove formed in said second opposed surface.

7. (Currently Amended) The plate of claim 6, wherein said groove extends substantially radially from a point closer to the outer surface of said second opposed surface to a point close to the central ~~control~~ axis of said second opposed surface.

8. (Currently Amended) The plate of claim 4, wherein said plurality of interleaved spiral flow channels have a substantially rectangular cross section.

9. (Currently Amended) The plate of claim 5, wherein said plurality of interleaved spiral flow channels comprises ~~comprising~~ four interleaved spiral grooves in said first surface.

10. (Currently Amended) The plate of claim 6, comprising four interleaved spiral grooves in said first surface and four radially extending grooves in said second surface for establishing fluid flow communication between each of the four interleaved spiral grooves.

11. (Currently Amended) A countercurrent chromatography apparatus comprising:
a column assembly~~, wherein the column assembly comprises~~ having a plurality of coupled separation disks, ~~and wherein~~ each of said coupled separation disks ~~comprises at least two~~ defining an inlet and an outlet, and further defining a plurality of interleaved spiral flow channels, with the inlet being in fluid flow communication with one of the plurality of interleaved spiral flow channels and outlet being in fluid flow communication with another one of the plurality of interleaved spiral flow channels, at least one of the plurality of interleaved spiral flow channels being in fluid flow communication with at least another one of the plurality of interleaved spiral flow channels wherein each of said plurality of interleaved spiral flow channels comprises ~~a first~~ an inner end and ~~a second~~ an outer end, wherein the inner end of each of the plurality of interleaved spiral flow channels is ~~said first ends are~~ closer to a central ~~control~~ axis defined through each of the plurality of said separation disks than said outer end of each of the plurality of interleaved spiral flow channels ~~second ends~~, and wherein the outer ~~second~~ end of at least one of said interleaved spiral flow channels is in fluid flow communication with the inner ~~first~~ end of

another ~~a different~~ one of said interleaved spiral flow channels.

12. (Currently Amended) The apparatus of claim 11, wherein the outer end ~~ends~~ of ~~each~~ at least one of the plurality of interleaved spiral flow channels of one of the plurality of coupled separation plates is ~~channel are~~ in fluid communication with the inner end ~~ends~~ of ~~different~~ another one of a plurality of interleaved spiral flow channels in another plurality of coupled separation disks.

13 -19 (Canceled)

20. (Currently Amended) A countercurrent chromatography apparatus comprising:

a series of coupled plates;

a groove means in said plates for routing fluid through a plurality of interleaved spiral flow paths,

wherein each of said plurality of interleaved spiral flow paths comprises a first end and a second end, wherein said first ends are closer to a ~~control~~ central axis of said plates than said second end ~~ends~~ and wherein the second end of at least one of said plurality of interleaved spiral flow paths is in fluid flow communication with the first end another ~~a different~~ one of said plurality of interleaved spiral flow paths, wherein the first end of one of the plurality of interleaved spiral flow channels is in fluid flow communication with an inlet and the second end of another one of the plurality of interleaved spiral flow channels is in fluid flow communication with an outlet.

21. (Previously Presented) The apparatus of claim 20, wherein said groove means is provided on first and second sides of at least one of said plates.

22-24 (Canceled)

25. (Currently Amended) The apparatus of claim 21, wherein said groove means on said first side of at least one plate is a plurality of spiral flow paths and said groove means on said second means on said second side of at least one plate is substantially radial flow path connecting the outer end of at least one spiral flow path to the inner end of a different one spiral flow path.